ABSTRACT OF THE DISCLOSURE

The present invention relates to an efficient snapshot technique based on a mapping for a large logical volume shared in multiple hosts. According to the present invention, problems of time delays in a conventional snapshot technique is solved by employing a FAB and an SSB, which are bits representing whether a COW operation is carried out to a mapping entry. In other words, the present invention solves the problems of delaying a write operation of corresponding volume, which is simultaneously executed when a snapshot is created, until the snapshot creation is completed. Further, in the write operation carried out after the snapshot creation, an operation of determining whether the COW operation is carried out is achieved by reading only an original mapping block by using the FAB and the SSB, without reading out the snapshot mapping block. Therefore, an additional disk access operation is decreased when carrying out a write operation to the volume in which the snapshot exists, thereby improving the performance of operation. Furthermore, in a snapshot destruction operation, the operation of determining whether the COW operation is carried out or not can be achieved without access to the snapshot mapping block, thereby preventing the degradation of performance. In case there is at least one snapshot, the determination operation can be achieved by an access to the original mapping block. Consequently, constant performance is always provided without the number of the snapshots.